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Application No.: 10/510,992
Filed: October 12, 2004
TC Art Unit: 2863
Confirmation No.: 2081

REMARKS

The foregoing Amendment is filed in response to the Office Action dated January 12, 2007. Reconsideration is respectfully requested.

The status of the claims is as follows:

Claims 1-32 are currently pending.

Claim 30 has been allowed.

Claims 1-29 stand rejected.

Claims 31-32 have been objected to.

Claims 1, 23, 26, 28, and 31-32 have been amended.

The Examiner has rejected claims 1-29 under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Specifically, the official action indicates that claims 1-29 fail to include a transformation from one physical state to another, and that although the claims appear useful and concrete, there does not appear to be a tangible result claimed. The official action further indicates that the outcome of the analyzing step has not been used in a disclosed practical application nor made available in such a manner that its usefulness in a disclosed practical application can be realized. The Applicants respectfully submit, however, that base claims 1, 23, and 28, as amended, and the claims depending therefrom, are

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directed to statutory subject matter, and therefore the rejections of these claims under 35 U.S.C. 101 should be withdrawn.

For example, amended base claim 1 recites a method of analyzing a multi-dimensional data set to determine the presence of one or more peaks within the data set, in which the peaks are representative of respective compounds. As recited in amended claim 1, the method is performed by a computer including at least one processor and at least one memory, and is used for detecting at least one constituent compound in a sample mixture. Specifically, the method of amended claim 1 includes generating a first multi-dimensional data set, in which the first data set is representable by a first data array including a first dimension corresponding to compound separation and a second dimension corresponding to compound characteristics. Next, the first data array is analyzed in the compound separation dimension to generate one or more original representations of the compound separation, in which the original representations include one or more peaks and one or more regions having no peaks. Noise characteristics of the first data set are then determined based on an analysis of the regions of the original representations having no peaks.

Next, noise in the first multi-dimensional data set is reduced by performing matched filtration of the original

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representations of the compound separation with at least one transfer function based on the determined noise characteristics, thereby generating one or more noise-reduced representations of the compound separation. The noise-reduced representations include one or more peaks. A second multi-dimensional data set is then generated with reduced noise based on the noise-reduced representations, in which the second data set is representable by a second data array including a compound separation dimension and a compound characteristics dimension. Next, the second data array is analyzed in the compound separation dimension and the compound characteristics dimension to determine the presence of one or more peaks within the second data set. In the event one or more peaks are present within the second data set, data indicative of the peaks within the second data set is stored in the memory.

As discussed above, the official action indicates that although claims 1-29 appear useful and concrete, there does not appear to be a tangible result claimed. More specifically, the official action indicates that the outcome of the analyzing step has not been used in a disclosed practical application, nor made available in such a manner that its usefulness in a disclosed practical application can be realized. The Applicants respectfully point out, however, that the outcome of the analyzing

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step, namely, the determination of the presence of one or more peaks (compounds) within the second data set, as recited in amended base claim 1, is in fact used in a disclosed practical application, i.e., an application for detecting at least one constituent compound in a sample mixture (see the preamble of amended claim 1). The Applicants respectfully submit that the method of amended claim 1 is useful because it allows such compounds to be detected, identified, and quantitated with increased reliability in the presence of chemical and/or random noise, and with substantially no distortion in the mass spectral domain (see page 6, lines 16-23, of the application).

In addition, the Applicants respectfully point out that the outcome of the analyzing step discussed above, namely, the determination of the presence of one or more peaks (compounds) within the second data set, as recited in amended base claim 1, is made available in such a manner that its usefulness in a disclosed practical application can be realized, by, in the event one or more peaks are present within the second data set, storing data indicative of the peaks within the second data set in the memory (see the storing step recited in amended claim 1). As recited in the preamble of amended claim 1, the method is performed by a computer including at least one processor and at least one memory

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(see also page 4, line 27, to page 5, line 11; page 8, line 25, to page 9, line 2; page 9, lines 14-19; and, Fig. 1, of the application). The Applicants respectfully submit that when the method of amended claim 1 is performed by the computer, it is inherent in the operation of the computer that data such as the first data set, the second data set, and the data indicative of the peaks within the second data set, would be stored at least temporarily in the memory of the computer. Because such data indicative of the peaks (compounds) within the second data set is stored in the memory of the computer, a user can subsequently access such information from the memory to characterize the compounds contained in a sample mixture.

Because, as discussed above, the outcome of the analyzing step of amended base claim 1 is used in a disclosed practical application, and is made available in such a manner that its usefulness in a disclosed practical application can be realized, the Applicants respectfully submit that amended claim 1, and the claims depending therefrom, are directed to statutory subject matter and therefore satisfy the requirements of 35 U.S.C. 101. For at least the reasons discussed above with reference to amended claim 1, the Applicants further submit that amended base claims 23 and 28, and the claims depending therefrom, are directed to

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statutory subject matter and therefore satisfy the requirements of 35 U.S.C. 101. Accordingly, it is respectfully submitted that the rejections of claims 1-29 under 35 U.S.C. 101 should be withdrawn.

In view of the foregoing, it is respectfully submitted that the present application is placed in a condition for allowance. Early and favorable action is respectfully requested.

The Examiner is encouraged to telephone the undersigned Attorney to discuss any matter that would expedite allowance of the present application.

Respectfully submitted,

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